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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,521	03/19/2004	Sergio R. Mohedas	1856-40000 (9951.0-02)	7536
23505	7590	08/10/2006	EXAMINER	
CONLEY ROSE, P.C. P. O. BOX 3267 HOUSTON, TX 77253-3267			I'ARSA, JAFAR F	
			ART UNIT	PAPER NUMBER
			1621	
DATE MAILED: 08/10/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/804,521

Applicant(s)

MOHEDAS ET AL.

Examiner

Jafar Parsa

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-72 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-72 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dai et al (USPN 6,160,026).

Applicants' claimed invention relates to methods for prevention of and recovery from a catalyst bed slumping in a gas-agitated multiphase hydrocarbon synthesis reactor, while the reactor is either under non-reactive conditions or under reaction promoting conditions when syngas is converted to products. The reactor contains a catalyst bed comprising catalyst particles and a gas injection zone suitable for injecting a reactor gas feed. A method for preventing bed slumping comprises supplying a supplemental gas to the gas-agitated multiphase reactor to prevent the catalyst bed from slumping due to insufficient reactor gas feed flow. The method may include recycling some or all of the supplemental gas to the reactor. The method may further

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comprise separating the gas injection zone from the catalyst bed with a porous plate so as to prevent migration of catalyst particles into the gas injection zone and to minimize plugging of gas distributor(s) present in said zone.

Dai et al teach a process for producing hydrocarbons from hydrogen and carbon monoxide by reacting hydrogen and carbon monoxide in the presence of a particulate solid catalyst and a substantially inert liquid medium. This reaction takes place in a reactor vessel adapted for the reaction of gases in the presence of a substantially inert liquid medium and a bed of solid particulate catalyst. The hydrogen gas and carbon monoxide gas are introduced at a plurality of locations within the reactor vessel. Bubbles of gas flow upward through the bed of solid catalyst particles and substantially inert liquid medium at sufficient velocity to expand the bed to a volume greater than its static volume. This velocity creates a turbulent reaction zone wherein liquid, gas, and solid catalyst are present and are in a state of motion (see abstract).

Dai et al teach that the introduction of gas at a plurality of locations within the reactor provides a means to supplement the gas within the reactor with hydrogen gas, carbon monoxide gas, or other gases, or of mixtures thereof, at predetermined points in the reactor. This supplemental gas is used to maintain the optimum hydrogen to carbon monoxide ratio so that the selectivity of the catalyst is toward making the desired product, which in a preferred embodiment of this invention is a waxy paraffin. This supplemental gas is used to maintain the partial pressure of both carbon monoxide and of hydrogen in order to facilitate a high but controlled rate of reaction. Furthermore, this supplemental gas injection will improve gas distribution throughout the bed and help

prevent undesirable back-mixing (see col.3, lines 28-41).

Dai et al disclose that the reactor contains means for introducing gas comprising one or both reactant gases at a plurality of locations within the single reaction zone. One of these locations is that previously discussed near the bottom of the reaction zone, since the bubbles tend to rise through the bed. The other means may be located throughout the reaction zone. In a preferred embodiment synthesis gas injected at the bottom-most gas injection means, has a molar ratio of hydrogen to carbon monoxide that is between 0.5:1 to about 6.0:1, preferably between 1.0:1 to 3.0:1; and more preferably between 1.6:1 to 2.2:1. Dai discloses that one skilled in the art may recycle a portion of the separated gas including the supplemental gas through the reactor, or use this gas in a subsequent reactor, or use this gas as fuel (see col. 6, lines 50-67).

In the first aspect, Dai does not specifically teach that a supplemental gas is supplied when the reactor gas feed flow rate becomes less than the reference flow rate. However, Dai clearly teaches that bubbles of gas flow upward through the bed of solid catalyst particles and substantially inert liquid medium at sufficient velocity to expand the bed to a volume greater than its static volume. This velocity creates a turbulent reaction zone wherein liquid, gas, and solid catalyst are present and are in a state of motion. Thus, in order to have catalyst particles in a state of motion one ordinary skill in the art would have been motivated to supply the supplemental gas to the reactor gas feed when the reactor gas feed flow rate becomes less than the reference flow rate in order to prevent the catalyst particles from slumping.

In the second aspect, the Dai reference does not disclose the catalyst particle size and a solution to prevent the migration of the catalyst particles into the gas injection zone by separating the reaction zone from the gas injection zone by a porous plate. However, Mart in a similar process teaches that the tail gas from the activity increasing reaction was recycled back and passed up through the gas distributor, in an amount adequate to maintain sufficient gas velocity up through the gas distributor or **grid** at the bottom of the slurry body, to prevent the catalyst particles from weeping down through the gas injection means in the distributor and to maintain catalyst particle distribution in the slurry body. See col. 13, lines 9-16. It would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to separate the reaction zone from the gas injection zone by a porous pate or grid at the bottom of the slurry body, to prevent the catalyst particles from weeping down through the gas injection zone.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jafar Parsa whose telephone number is (571)272-0643. The examiner can normally be reached on 8 a.m.-4:30 p.m. (M-F).

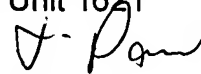
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman Page can be reached on 571-272-0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JP
August 6, 2006

Jafar Parsa
Primary Examiner
Art Unit 1621



J. PARSA
PRIMARY EXAMINER